
The little molecules that could: a story about microRNAs in neural stem cells and neurogenesis.

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Public Summary:

The field of regenerative medicine is rapidly advancing. While in recent years, much attention has been focused on the conversion of somatic cells, such as skin fibroblasts, to an embryo-like or pluripotent state, there are still many limitations associated with the applications of induced pluripotent stem cell reprogramming, including relatively low efficiency of the conversion, the long times required for the event to take place, the instability of epigenetic changes, and potential tumor formation associated with the pluripotent state. On the other hand, lineage reprogramming involves the conversion from one mature cell type to another, for example, from skin cells to brain cells, without undergoing conversion to an unstable intermediate state. It provides an alternative approach that has a relatively lower risk of tumor formation and increased efficiency within specific cellular contexts. Lineage reprogramming provides exciting potential for regenerative medicine, although more research is needed before this technology is applied in a clinical setting.

Scientific Abstract:

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